

## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference sps.2827.pct.ac.m	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/GB2004/001193	International filing date (day/month/year) 19.03.2004	Priority date (day/month/year) 25.03.2003
International Patent Classification (IPC) or national classification and IPC E21B37/02, E21B43/10		
Applicant SPECIALISED PETROLEUM SERVICES GROUP LIMITED		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 4 sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  24.01.2005	Date of completion of this report  15.06.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  van Berlo, A  Telephone No. +31 70 340-3535	



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/GB2004/001193

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

### Description, Pages

1-12

as originally filed

### Claims, Numbers

1-20

received on 05.04.2005 with letter of 01.04.2005

### Drawings, Sheets

1/3-3/3

received on 03.05.2004 with letter of 23.04.2004

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☒ the claims, Nos. 1-12 (amended)
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/GB2004/001193

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## Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

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1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 15-22 (as originally filed)

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the said claims Nos. 15-22
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/GB2004/001193

## Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☒ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
  - ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-14 (originally filed) .

## Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes: Claims	14
	No: Claims	1-13
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

### 2. Citations and explanations (Rule 70.7):

**see separate sheet**

## Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/GB2004/001193

**Re Item IV**

**Lack of unity of invention**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claim 1-14 (as originally filed)  
Cleaning tool with eccentrically located elements
2. Claim 15-22 (as originally filed)  
Method of cleaning a liner top

A cleaning tool of claim 1 is known from US-A-2.667.930.

The cleaning tool according to the first invention only differs from US-A-2.667.930 by the features of claim 14. These features are therefore considered to be the special technical features of the first invention.

The potential special technical feature of the second invention is the step of running the cleaning tool and the liner together.

The problems solved by these (potential) special technical features are:

- 1) Overdisplaced cement (page 1, line 10-16)
- 2) Costs of separate trips (page 2, line 12-15)

As the (potential) special technical features are not the same and do not correspond as they solve different technical problems, a technical relationship as required by Rule 13(2) PCT is not present and therefore the requirements of unity of invention are not fulfilled.

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/GB2004/001193

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

It should be noted that, as indicated in Box I under item 4, that this report has been established as if the amendments annexed to this report had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)). The claim numbers refer therefore to the claims as originally filed.

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The document US-A-2.667.930 discloses (the references in parentheses applying to this document):

A cleaning tool for use on a work string (C), the tool comprising a cylindrical body (10) having an axial bore (15) running there through, a plurality of cleaning elements (20) mounted thereon and positioning means (22) to move the cleaning elements in relation to the body, and wherein the elements are located eccentrically to the axial bore.

2. Also the subject-matter of claim 2-13 is known from US-A-2.667.930 and therefore not new in the sense of Article 33(2) PCT.

3. Claim 14 does not involve an inventive step in the sense of Article 33(3) PCT. The combination of a cleaning tool according to claim 13 with a mill as described in claim 14 is not inventive, see WO 02/35055, in particular page 7 line 26 to page 8 line 11.

**Re Item VII**

**Certain defects in the international application**

Figure 2, as received on 03.05.04, is different from the drawing as originally filed and is not clear in light of the description (page 9, line 15-22). Particularly the element 24a is drawn in the newly filed drawings as penetrating through the PBR (66). However, in the original drawing and the description, element 24a is drawn to schematically present the position of the point of the leading edge.

CLAIMS

1. A cleaning tool for use on a work string, the tool comprising a cylindrical body having an axial bore running there through, a plurality of eccentrically located cleaning elements mounted thereon, the cleaning elements having outer faces, the outer faces having a curvature, and, positioning means to move the cleaning elements in relation to the cylindrical body from a first position to a second position, wherein, in the first position, the outer faces of the cleaning elements define a cylindrical surface centralised to the axial bore so that the elements provide a polishing action, and, in the second position, the outer faces present leading edges providing a scraping action.
2. A cleaning tool as claimed in Claim 1 wherein each cleaning element is substantially rectangular in cross-section to provide a first edge between a side and the outer face.
3. A cleaning tool as claimed in Claim 1 or Claim 2 wherein the plurality of elements are located in at least one band around the circumference of the body.
4. A cleaning tool as claimed in any preceding Claim wherein each element is located in a recess of the body, each recess being located longitudinally on the body, eccentrically to the axial bore.
5. A cleaning tool as claimed in any preceding Claim wherein the positioning means is a biasing means located in the recess against the cleaning element.

6. A cleaning tool as claimed in Claim 5 wherein the biasing means is a spring held in compression, biasing the element away from the body.
7. A cleaning tool as claimed in any preceding Claim, wherein the curvature of the outer face of each cleaning element is greater than a curvature of the cylindrical body.
8. A cleaning tool as claimed in any preceding Claim, wherein, in the second position, the outer faces are located outwardly of the first position.
9. A cleaning tool as claimed in any preceding Claim, wherein the outer face comprises a material being softer or more malleable than the material of a Polished Bore Receptacle (PBR).
10. A cleaning tool as claimed in any preceding Claim wherein the elements include a profiled end which is tapered.
11. A cleaning tool as claimed in any preceding Claim wherein the elements include a profiled end arranged to provide a stop.
12. A cleaning tool as claimed in Claim 13 wherein the end comprises a mill, so that the tool acts as a top dress mill.
13. A method of cleaning a liner top, the method comprising the steps;  
(a) inserting a cleaning tool into a liner;



- (b) running the tool and liner together into a well bore;
  - (c) setting the liner at a casing in the well bore;
  - (d) rotating and/or reciprocating the tool to clean an inner surface of a PBR on the liner with cleaning elements thereon;
  - (e) pulling the tool from the PBR, so that the cleaning elements move outwardly to contact neighbouring casing at the liner top; and
  - (f) rotating and/or reciprocating the tool to clean an inner surface of the neighbouring casing with the leading edges of the cleaning elements.
14. A method of cleaning a liner top as claimed in Claim 13 wherein the tool is as claimed in any one of Claims 1 to 12.
15. A method of cleaning a liner top as claimed in Claim 13 or Claim 14 wherein the method includes the further step of tripping the tool from the well bore.
16. A method of cleaning a liner top as claimed in any one of Claims 13 to 15 wherein the method includes the step of attaching the tool to a liner setting tool, so that the tool is tripped out with the setting tool.
17. A method of cleaning a liner top as claimed in any one of Claims 14 to 16 wherein the method further includes the step of selecting the curvature of the outer faces to be no greater than the curvature of the inner surface of the PBR.

18. A method of cleaning a liner top as claimed in any one of the Claims 13 to 17 wherein the method includes the step of running the tool back into the PBR.
19. A method of cleaning a liner top as claimed in any one of the Claims 13 to 18 wherein the method includes the step of dressing a top of the PBR.
20. A method of cleaning a liner top as claimed in any one of Claims 13 to 19 wherein the method includes the step of setting down weight on the tool to thereby set a packer.